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10/588,480	04/09/2008	Chul-Sik Yoon	1403-21 PCT US	8209

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EXAMINER
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SHEN, QUN

ART UNIT	PAPER NUMBER
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2617

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/588,480	<b>Applicant(s)</b> YOON ET AL.	
	<b>Examiner</b> QUN SHEN	<b>Art Unit</b> 2617	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12//406</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This communication is a First Action non Final on the merits. Claims 1-16, as originally filed, are currently pending and have been considered below.

#### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in PCT/KR2005/000313 on February 2, 2005. It is noted, however, that applicant has not filed a certified copy of the Korea 2004-0006574 and Korea 2004-0091824 applications as required by 35 U.S.C. 119(b).

#### ***Drawings***

2. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (see pars 22, 35-42 of specification). See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Specification***

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3. The disclosure is objected to because of the following informalities: In line 4 of par 8 of specification, “a **forward** channel from the selected subscriber station” appears to be a **reverse** channel...”.  
  
Appropriate correction is required.

### ***Claim Objection***

4. Claims 1, 4, 6-7, 9 are objected to because of the following informalities:  
Claim 1 recites “by subscriber station in the mobile communication system” and “determining whether the channel quality information indicator is included in lines 2 and 5 of claim 1, page 15. “the mobile communication system” and “the channel quality information indicator” are lack of antecedent basis. “subscriber” should be a subscriber.

Claim 7 recites “for request of the channel quality information indicator in (b)” where the channel quality information indicator in (b) is lack of antecedent basis.

Claim 9 recites “according the allocation information” in the last line of claim 9, page 16. A “to” after according appears missing.

There exist numerous grammatical typos to be fixed to avoid mis-interpret the claimed invention throughout the claims. For example, “set **into** a pre-determined value” in line 4 of claim 5, page 15, “transmitted **to** (perhaps on or over?) the uplink”, line 4, claim 6, page 15.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: (*See MPEP Ch. 2141*)

Determining the scope and contents of the prior art;  
Ascertaining the differences between the prior art and the claims in issue;  
Resolving the level of ordinary skill in the pertinent art; and  
Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

**5. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2004/0142698 A1, Pietraski (hereinafter Pietraski), in view of US 2005/0289256 A1, Cudak et al. (hereinafter Cudak).**

As to claim 1, Pietraski discloses a method for reporting channel quality information for representing the channel quality by subscriber station in the mobile communication system (abstract), comprising:

a) receiving uplink radio resource allocation information for transmitting uplink data from a base station (Fig 3: 202, 204, par 0030);

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c) generating the channel quality information by measuring the radio channel for communicating with the base station (Fig 3: 210, 212, par 0030), when the channel quality information indicator is included in the allocation information; and,  
d) including the channel quality information to the uplink data (Fig 3: 216) and transmitting the uplink data to the base station through the radio resource corresponding to the allocation information (Fig 3: 216, 218, pars 0030-0033).

Pietraski does not expressly disclose b) determining whether the channel quality information indicator is included in the allocation information, the channel quality information indicator represents a channel quality information report. In the same field of endeavor, Cudak, teaches that the allocation information may include channel quality information indicator (Cudak: Fig 4: 403, transmit a channel quality request message to sub-set of remote unite (subscriber station), pars 0043-0044, 0047 – persistence, a indicator of # of time channel quality information would be sent back to a base station, 0049 - resource allocation). Consider both Pietraski and Cudak's teachings as a whole, it would have been obvious to one of skill in the art at the time of invention to modify Pietraski's method of channel quality information estimation and prediction by incorporating Cudak's teachings in generating providing channel quality request message to remote stations for more effective channel quality feedback with less resources.

As to claim 2, Pietraski ad modified discloses the method for reporting the channel quality information by the subscriber station of claim 1, wherein the channel quality

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information indicator is a piggyback indicator (Cudak: Figs 2, 6-7, channel quality request as part of downlink data transmission).

As to claim 3, Pietraski as modified discloses the method for reporting the channel quality information by the subscriber station of claim 1, wherein the uplink data includes data to be transmitted, and a header having information for the data and the subscriber station (Cudak: Figs 6, 8, the header of uplink channel as known in the art), the uplink data in (d) is transmitted by adding a subheader including the channel quality information to the header of the uplink data (Cudak: Figs 6, 8, channel quality report is transmitted along with (in front of) uplink data transmission, pars 0022, 0024-0026, 0028, 0037-0039).

As to claim 4, Pietraski as modified discloses the method for reporting the channel quality information by the subscriber station of claim 3, wherein the subheader including the channel quality information is added in advance to residual subheaders when a plurality of subheaders is added to the header of the uplink data (Cudak: pars 0022, 0024-0041, indicating channel quality report message may include additional information such as C/I, data rate, coding rate, modulation scheme, and number of transmission etc. Such information may all be considered arranged or considered as subheaders of the uplink channel in advance (prior to uplink transmission), along with other subheaders if exist).

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As to claim 5, Pietraski as modified discloses the method for reporting the channel quality information by the subscriber station of claim 1, wherein the allocation information includes the channel quality information indicator (see analysis of claim 1), and the radio channel quality is measured to generate the channel quality information when the CQI indicator is set into a predetermined value for a request of the CQI, in (c) (Pietraski: Fig 3: 210-212, measure and derive CQI, Cudak: Fig 2, PERSISTENCE value, Fig 5).

As to claim 6, Pietraski as modified discloses a method for reporting channel quality information for representing a channel quality by a subscriber station in a mobile communication system (Fig 3), comprising:

- a) allocating an uplink radio resource to the subscriber station having data to be transmitted to the uplink (Pietraski: Fig 1: 102, 106, Cudak: Fig 2, par 0049, resource allocation);
- b) adding a channel quality information indicator for requesting the channel quality information to the uplink radio resource allocation information (Cudak: Figs 2, 5, 8, channel quality request provides the indicator, pars 0043, 0047); and
- c) transmitting the uplink radio resource allocation information including the channel quality information indicator to the subscriber station (Cudak: Figs 2, 5, 8), and requesting channel quality information (Pietraski: Fig 1: 112, 114, 116, 118, UE derives CQI, reports CQI to Node B used for next transmission, Cudak: Figs 2, 4, 8, par 0047).



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As to claim 7, Pietraski as modified discloses the method for the reporting channel quality information by the subscriber station of claim 6, wherein the channel quality information indicator is a piggyback indicator (see analysis of claim 2), and the channel quality information indicator is set by a predetermined value for a request of the channel quality information indicator in (b) (Cudak: Figs 2, par 0047, also see analysis of claims 3, 6).

As to claim 8, Pietraski as modified discloses the method for reporting the channel quality information by the subscriber station of claim 6, further comprising:  
receiving the uplink data from the subscriber station through the radio resource set according to the uplink radio resource allocation information (Cudak: Fig 4: 405, par 0061);  
extracting the channel quality information from the uplink data (Cudak: Fig 4: 405-407);  
and  
allocating the downlink radio resource to the subscriber station based on the channel quality information (Cudak: Fig 4: 407-411, pars 0061-0062).

As to claim 9, claim 9 is a method claim that recites limitations for requesting and reporting channel quality information in a mobile communication system wherein a base station and a subscriber station are coupled by a mobile network, with the following limitations:

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- a) controlling the base station to add a channel quality information indicator for requesting a channel quality information report to an uplink radio resource for the subscriber station having the data to be transmitted to the uplink, and transmit the uplink radio resource allocation information to the subscriber station;
- b) controlling the subscriber station to measure the radio channel quality according to the channel quality information indicator, and generate the channel quality information; and
- c) controlling the subscriber station to include the channel quality information to the uplink data and transmit the uplink data to the base station through the radio resource according the allocation information.

These limitations are equivalent or same with minor variance of the limitations recited in method claims 1 and 6. Therefore, claim 9 is rejected with the same reason set forth in claims 1 and 6 (see analysis and rejections above).

As to claim 10, Pietraski as modified discloses the method for the subscriber station to report and request the channel quality information of claim 9, further comprising: controlling the base station to allocate a downlink radio resource to the subscriber station based on the channel quality information included in the uplink data provided by the subscriber station (Cudak: Figs 3, 4).

As to claim 11, Pietraski as modified discloses the method for the subscriber station to report and request the channel quality information of claim 9, wherein the request and

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report method is applicable to the wireless portable internet system (Pietraski: pars 0003-0004, most of 3GPP technologies described are capable of wireless portable internet services, therefore, the method applicable to wireless portable internet system).

As to claim 12, claim 12 recites a base station that encompasses and necessitates the method claim 6. Rejection of claim 6 is therefore incorporated herein (see analysis and rejection above).

As to claim 13, Pietraski as modified discloses the base station of claim 12, wherein the base station resource controller includes: an uplink resource allocator for allocating the uplink radio resource to the subscriber station to generate the uplink radio resource allocation information (Cudak: Fig 3: 301, par 0061); and a channel quality requestor for generating channel quality information indicator to the request channel information from the subscriber station (Cudak: Fig 2, Fig 4: 403, pars 0061-0062), wherein the uplink resource allocator transmits the uplink radio resource allocation information provided with the channel quality information indicator to the digital signal transceiver (Cudak: Fig 3: 101).

As to claim 14, Pietraski as modified discloses the base station of claim 13, further comprising a downlink resource allocator for allocating a downlink radio resource to the subscriber station based on the channel quality information included in uplink data transmitted from the subscriber station according to the channel quality information

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indicator (Cudak: Fig 3: 301, controller that allocates the resources, Fig 4: 407-411, par 0059, determine modulation scheme and coding rate of next downlink transmission based on the CQI report over uplink feedback).

As to claim 15, claim 15 recites a subscriber that encompasses and necessitates the method claim 1. Rejection of claim 1 is therefore incorporated herein (see analysis and rejection above).

As to claim 16, claim 16 is rejected with the same reason set forth in claim 3 (see analysis and rejection above).

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUN SHEN whose telephone number is (571)270-7927. The examiner can normally be reached on Monday through Thursday, 9:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis West can be reached on 571-272-7859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/QUN SHEN/  
Examiner, Art Unit 2617

/Lewis G. West/  
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Unit 2617